

PCG-GRX670/GRX690

SERVICE MANUAL

Ver 1-2002J

Revision History

For American Area

US Model

Canadian Model



Lineup : PCG-GRX670
PCG-GRX690

Illust : PCG-GRX690

VAIO

- Design and specifications are subject to change without notice.

NOTEBOOK COMPUTER

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Caution Markings for Lithium/Ion Battery - The following or similar texts shall be provided on battery pack of equipment or in both the operating and the service instructions.

CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

CAUTION: The battery pack used in this device may present a fire or chemical burn hazard if mistreated. Do not disassemble, heat above 100°C (212°F) or incinerate.

Dispose of used battery promptly.

Keep away from children.

CAUTION: Changing the back up battery.

- Overcharging, short circuiting, reverse charging, multilatation or incineration of the cells must be avoided to prevent one or more of the following occurrences; release of toxic materials, release of hydrogen and/or oxygen gas, rise in surface temperature.
- If a cell has leaked or vented, it should be replaced immediately while avoiding to touch it without any protection.

Service and Inspection Precautions

1. Obey precautionary markings and instructions

Labels and stamps on the cabinet, chassis, and components identify areas requiring special precautions. Be sure to observe these precautions, as well as all precautions listed in the operating manual and other associated documents.

2. Use designated parts only

The set's components possess important safety characteristics, such as noncombustibility and the ability to tolerate large voltages. Be sure that replacement parts possess the same safety characteristics as the originals. Also remember that the Δ mark, which appears in circuit diagrams and parts lists, denotes components that have particularly important safety functions; be extra sure to use only the designated components.

3. Always follow the original design when mounting parts and routing wires

The original layout includes various safety features, such as inclusion of insulating materials (tubes and tape) and the mounting of parts above the printer board. In addition, internal wiring has been routed and clamped so as to keep it away from hot or high-voltage parts. When mounting parts or routing wires, therefore, be sure to duplicate the original layout.

4. Inspect after completing service

After servicing, inspect to make sure that all screws, components, and wiring have been returned to their original condition. Also check the area around the repair location to ensure that repair work has caused no damage, and confirm safety.

5. When replacing chip components...

Never reuse components. Also remember that the negative side of tantalum capacitors is easily damaged by heat.

6. When handling flexible print boards...

- The temperature of the soldering-iron tip should be about 270C.
- Do not apply the tip more than three times to the same pattern.
- Handle patterns with care; never apply force.

Caution: Remember that hard disk drives are easily damaged by vibration. Always handle with care.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

**LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE Δ SUR LES
DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT
CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE
REEMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY
DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU
DANS LES SUPPÉMENTS PUBLIÉS PAR SONY.**

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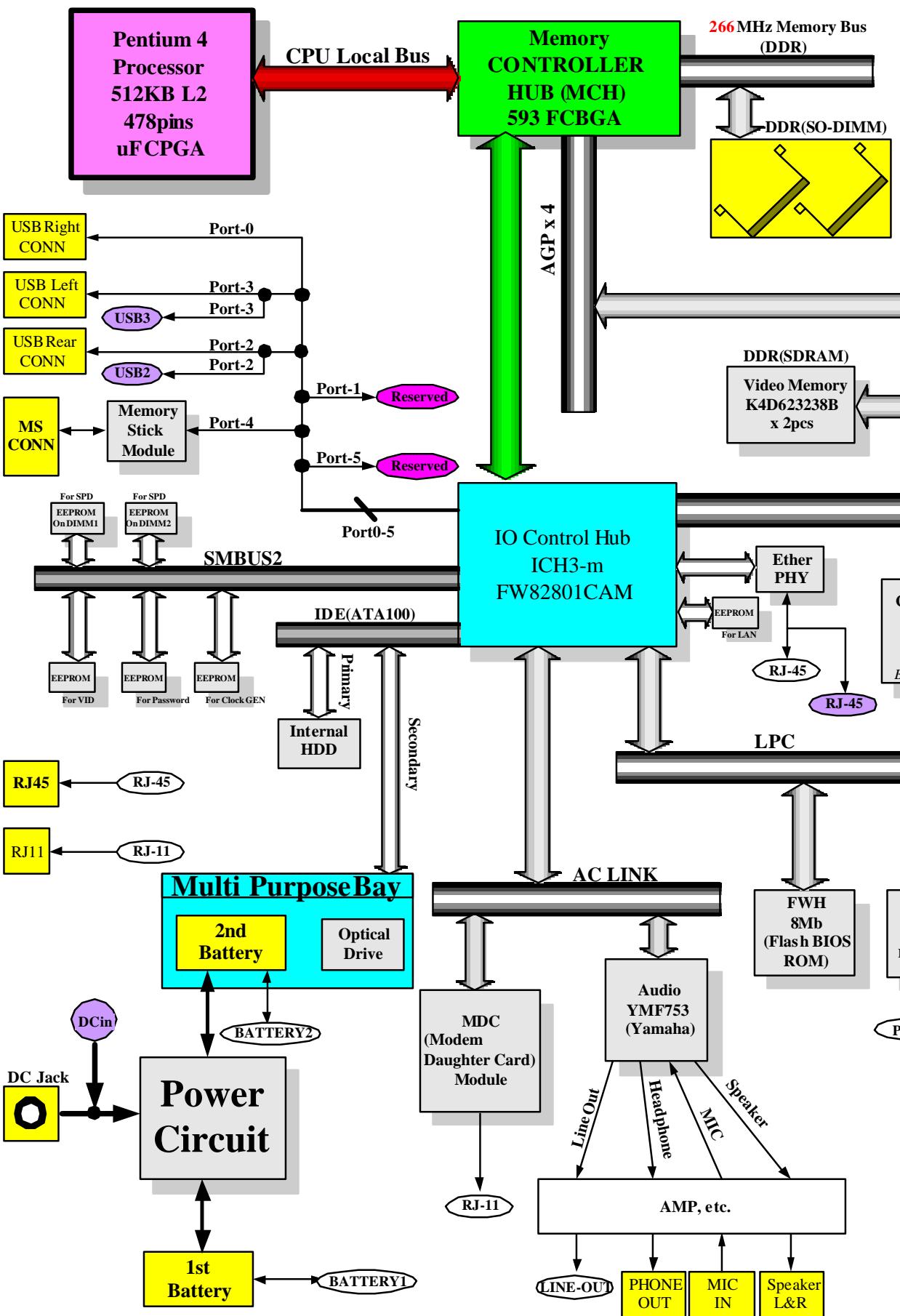
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History of the changes is shown as the
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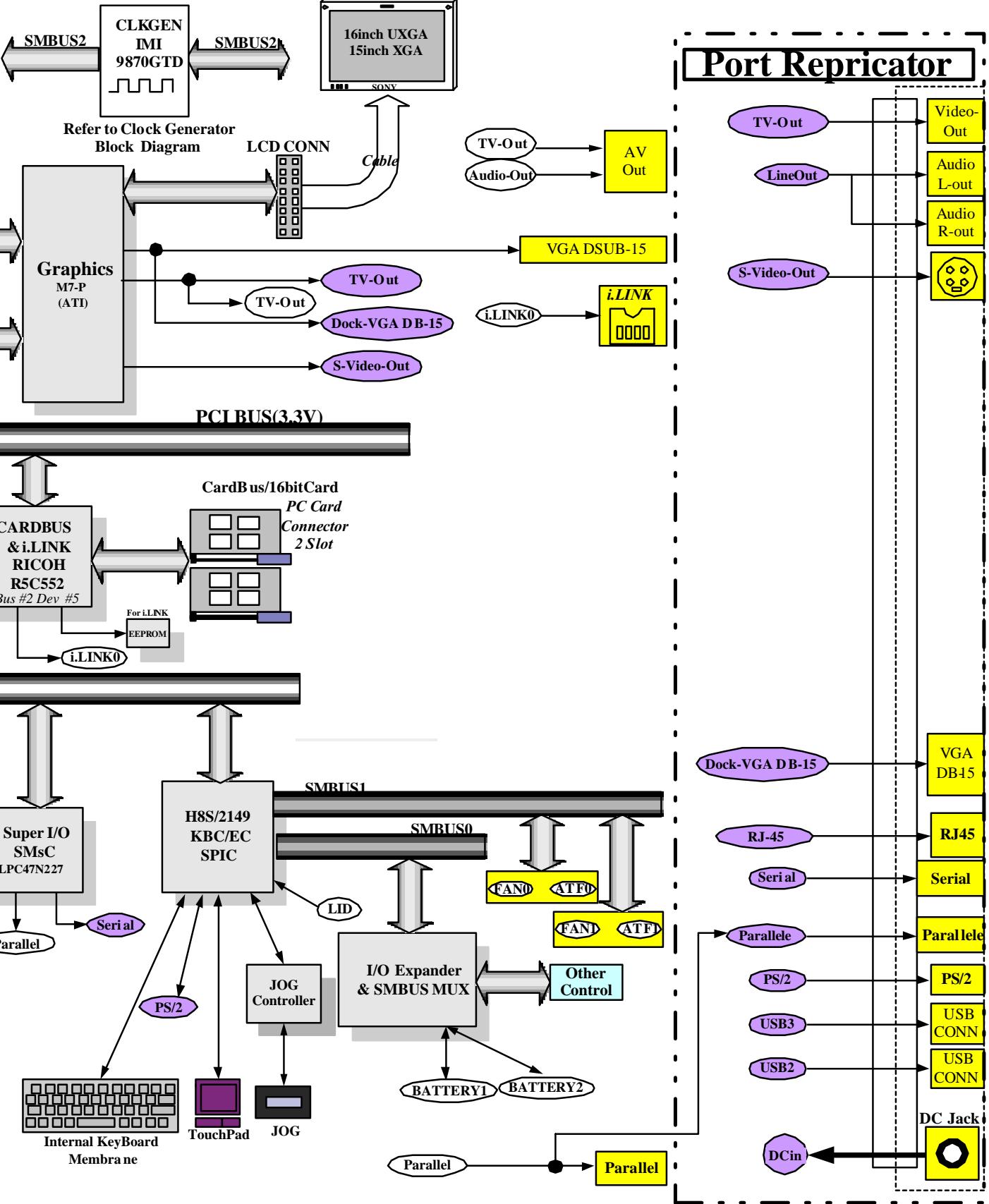
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CHAPTER 1.

BLOCK DIAGRAM

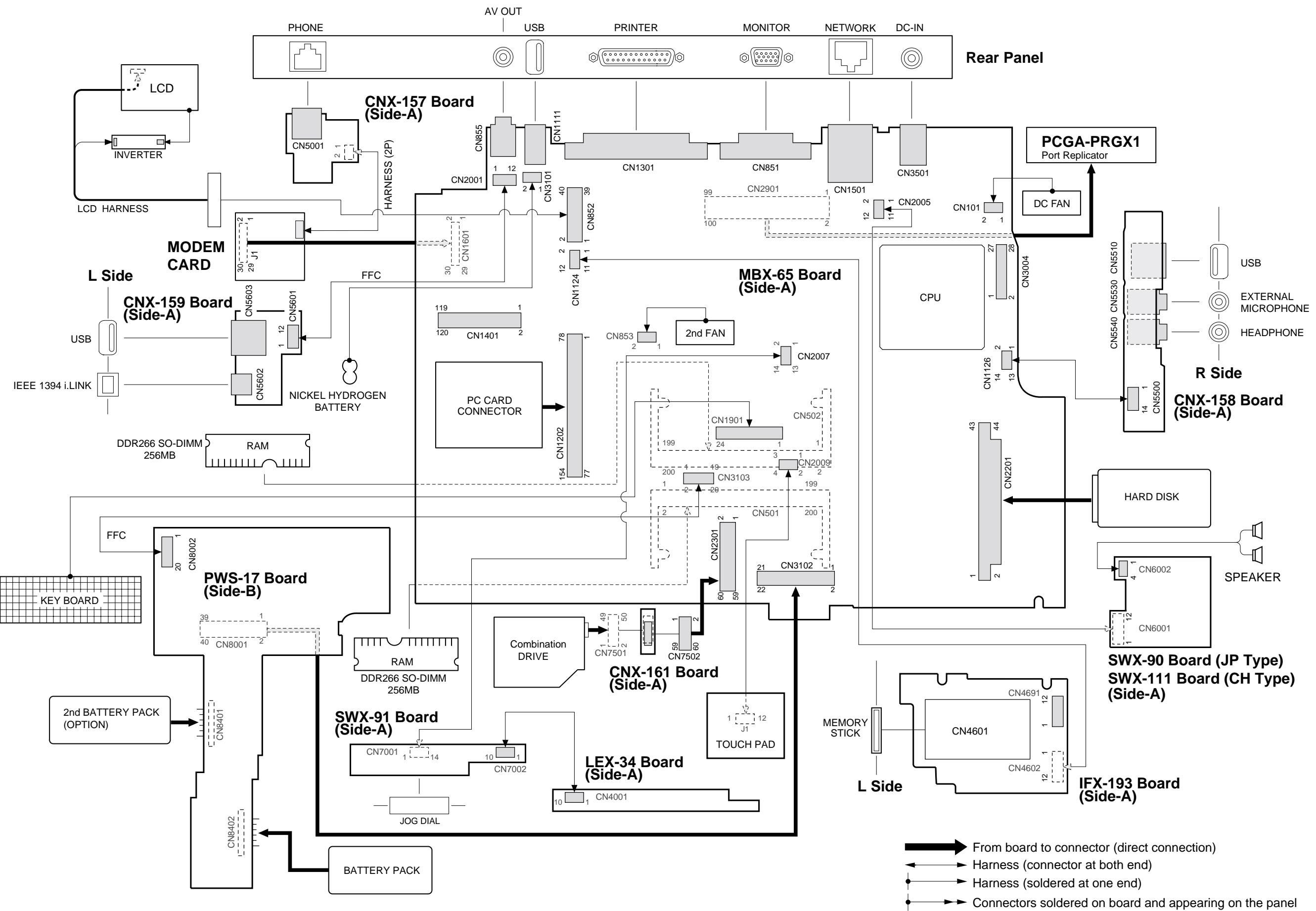


PCG-GRX Series BLOCK DIAGRAM Rev.0.10



CHAPTER 2.

FRAME HARNESS DIAGRAM



CHAPTER 3.

EXPLODED VIEWS AND PARTS LIST

NOTE:

- Items marked “*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- When two or more parts are shown in parallel, use the part described first as the main part.
- The parts marked “\$” are the High Value Modules.
- The parts marked “#” are the parts on which barcode label is attached.
- The indication [CH] is used for identification of part type.
- Regarding the boards of this model, the discrete parts on the boards cannot be replaced. However, Some connectors can be replaced.

The components identified by mark \triangle or dotted line with mark \triangle are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque \triangle sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

【使用上の注意】

- * 印の部品は常備在庫しておりません。
- 図面番号のない部品は供給しません。
- 併記部品の場合、上部記載部品をメイン部品として使用してください。
- 部品名称の前に \$ 印のついた部品は、High Value Module です。
- 商品名称の前に # 印のついた部品は、バーコードラベル貼付部品です。
- [CH]の表記は部品管理上の識別です。
- 本モデルの基板については、基板上の各部品の修理は行うことができません。ただし、一部のコネクタについては、修理可能です。

\triangle 印の部品、または \triangle 印付きの点線で囲まれた部品は、安全性を維持するために重要な部品です。従って交換時は、必ず指定の部品を使用してください。

How to Use Parts Differently.

This series of product uses the two different types of optical drive (To type and Pa type).

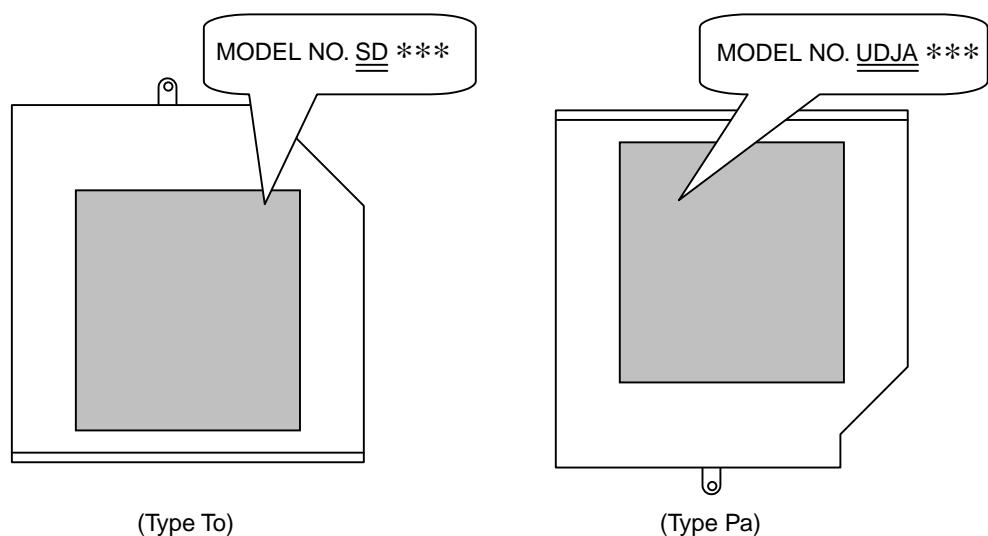
When replacing the optical drive, use the To type parts for the To type optical drive, and use the Pa type parts for the Pa type optical drive.

Replace the peripheral parts of optical drive with the same type in the same way.

[Applicable models]

GRX670/GRX690 Model

[How to identify the To and Pa types of parts]



[Example of showing in repair part list]

Ref. No.	Part No.	Description
----------	----------	-------------

999	1-796-506-11	\$ # W-DVD (SD-R6012) (To)
999	1-796-480-11	\$ # W-DVD (UDJA-810) (Pa)

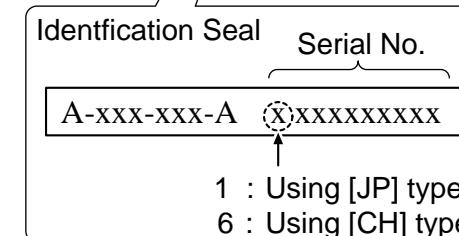
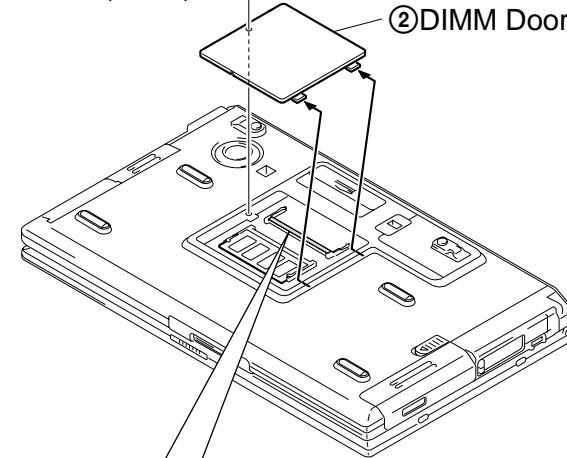
How to use properly the repair parts.

There are some parts that use the 2 types ; the [CH] parts or alternately the [JP] parts, in this series. Use the [CH] repair parts for the [CH] type product, vice versa.

[How to identify the parts]

①M2X4

Special Head (Black)



Identification seal is attached on the expansion memory connector.

[Repair part description example]

Ref. No.	Part No.	Description
----------	----------	-------------

999	A-8110-582-A	[CH]...MBX-65 ASSY (C) (S)
999	4-8067-424-A	[JP]...MBX-65 ASSY (S)

*About Repair level of mounted board.

JP type... Component level service is possible. Refer to this manual for details.

CH type... Do not execute the component level service in principle.

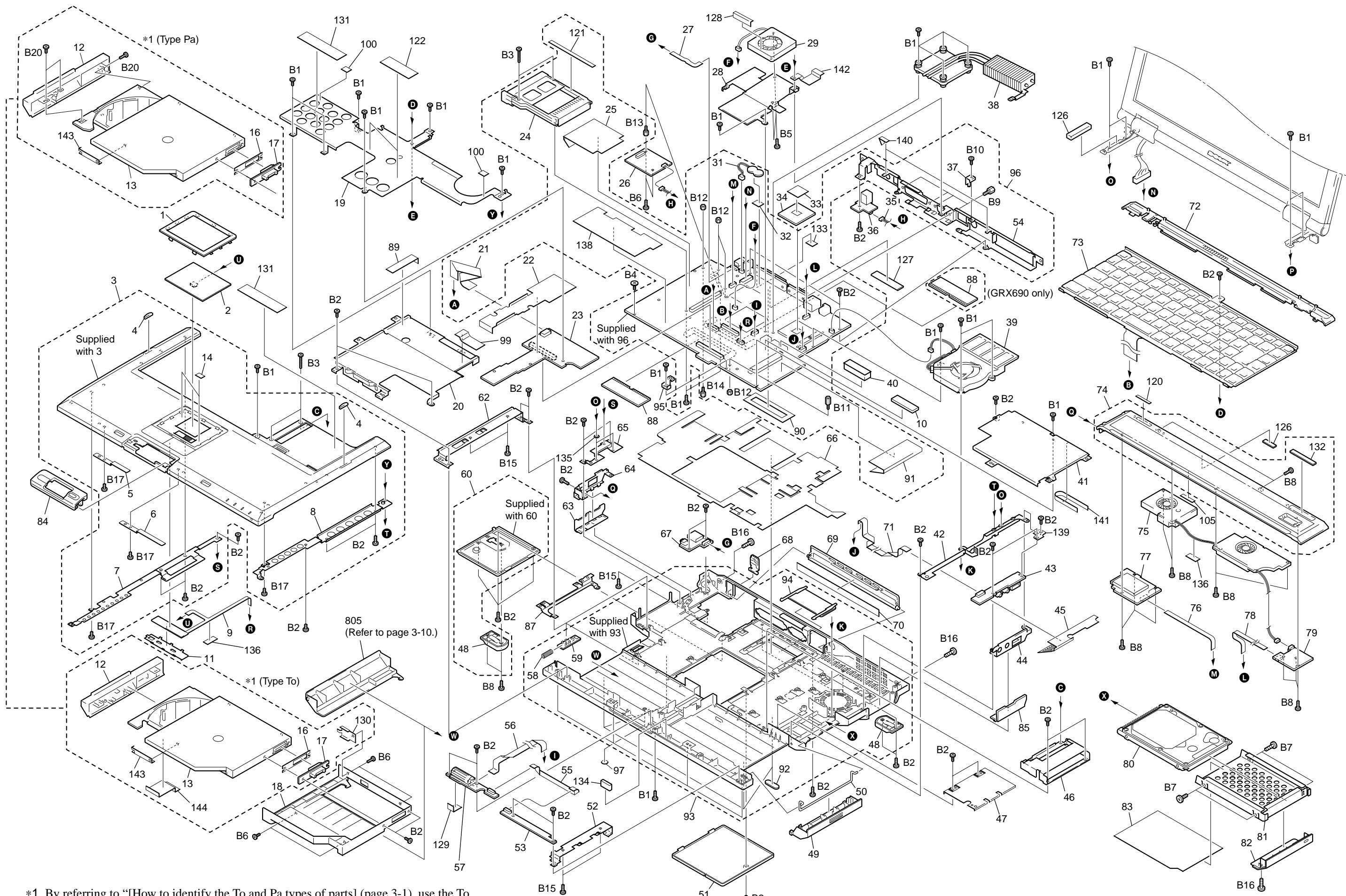
However, some of the connectors can be repaired by the component level service. Refer to “Connector Section” of this manual for details.

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3-1. Main Section

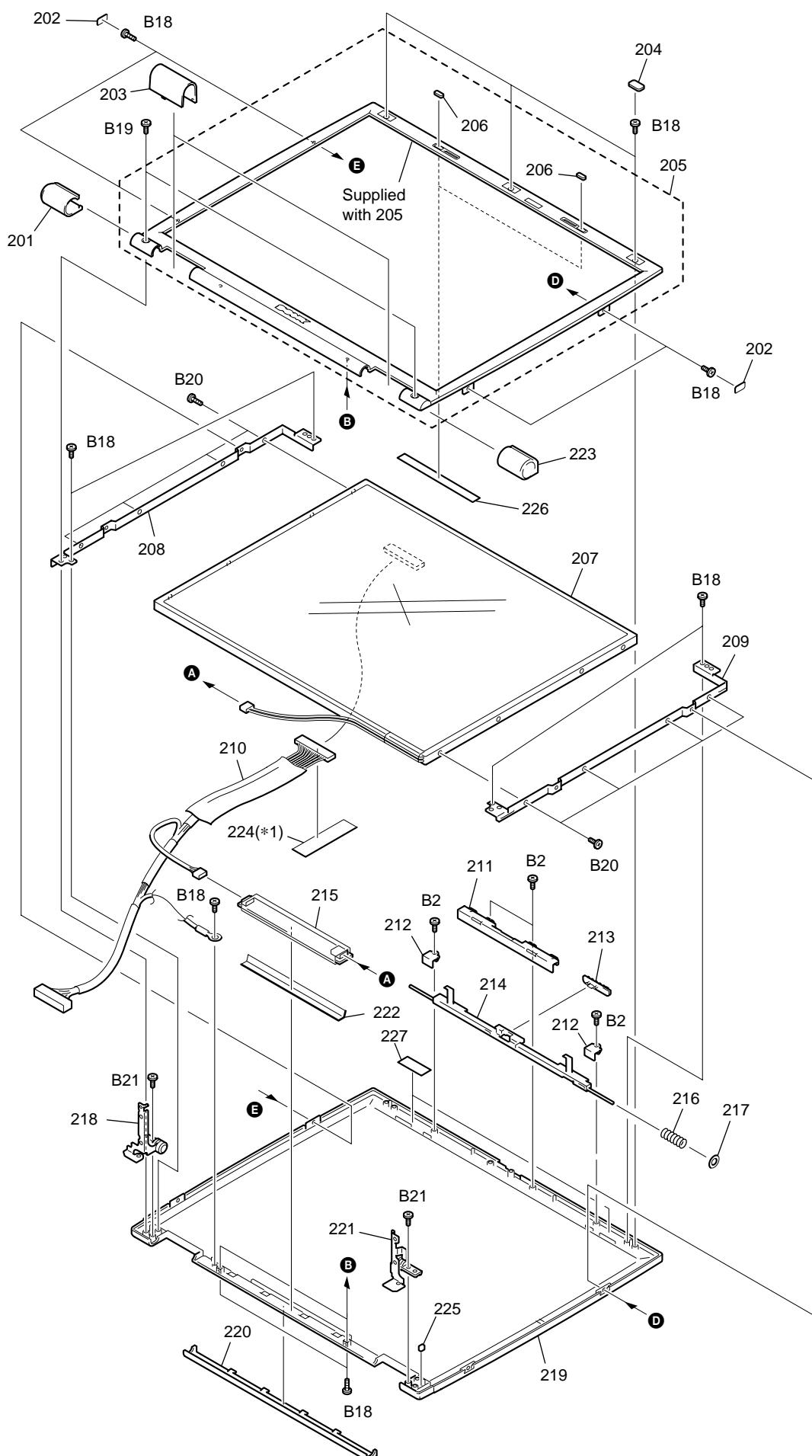
Ref.No.	Part No.	Description	Ref.No.	Part No.	Description	Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
1	4-660-888-01	ESCUSHION TOUCHPAD	* 62	4-660-448-01	SUB-FRAME BAY	138	4-665-909-01	INSULATOR BAY2	B1	4-641-726-41	SCREW (M2), SPECIAL HEAD
2	1-796-166-21	PAD, TOUCH	63	X-4624-538-2	ASSY DOOR L	139	4-666-111-01	SHEET AUDIO GND	B2	4-641-726-12	SCREW (M2), SPECIAL HEAD
3	X-4624-531-5	ASSY PALMREST	64	4-660-822-03	BRACKET DOOR L	140	4-666-114-01	SHIELD TAPE BRACKET IO A	B3	7-621-772-70	SCREW +B 2X14
4	4-660-904-01	CUSHION PALMREST	65	4-660-452-02	HINGE BASE LEFT	141	4-665-467-01	SPACER BATTERY (K)	B4	4-654-387-01	SCREW (MBX)
5	4-660-906-03	SPRING BLIND	66	4-660-872-01	INSULATOR HEATSINK BOTTOM	142	4-667-524-01	COPPER TAPE ETHERNET	B5	4-641-656-12	SCREW (M2.5), O PLATE P
6	4-660-906-13	SPRING BLIND	67	A-8067-476-A \$	CNX-159 ASSY (C) (S)	143	4-661-087-02	GROUND PLATE C	B6	4-656-703-01	SCREW M2
* 7	4-660-900-02	PLATE ARM LEFT	68	4-660-544-02	CAP MODEM	144	4-669-412-01	CU SHEET DVD-RW (To)	B7	4-635-301-01	SCREW M3X4
* 8	4-660-901-01	PLATE ARM RIGHT	69	4-660-864-02	DOOR IO				B8	4-639-112-01	SCREW M2X4
9	1-761-518-11	PWB, FLEXIBLE PRINT	70	4-660-874-11	LABELIO				B9	4-635-966-01	SCREW (HEX)
10	4-668-738-02	THERMAL SHEET FET	71	1-823-724-12	CABLE, FLEXIBLE FLAT				B10	4-642-852-01	+B M2
* 11	4-660-903-01	BRACKET TOUCHPAD	72	4-660-887-04	DISPLAY BASE				B11	4-654-386-01	SPACER (PWS)
12	X-4625-149-1	ASSY BEZEL DVD-RW (To)	73	1-477-285-21 \$	KEYBOARD UNIT (U)				B12	7-622-205-05	NUT M2 TYPE2
12	X-4624-992-1	ASSY BEZEL DVD-RW (Pa)	74	X-4624-605-5	ASSY HOOD KEYBOARD				B13	4-651-989-01	SPACER (MBX)
13	1-796-506-11 \$ #	W-DVD (SD-R6012) (To)	75	1-825-081-11	SPEAKER, (2.8CM) BOX WITH				B14	4-661-248-01	SPACER 4MM
13	1-796-480-11 \$ #	W-DVD (UJDA-810) (Pa)	76	1-823-719-12	CABLE, FLEXIBLE FLAT				B15	4-641-726-12	SCREW (M2), SPECIAL HEAD
14	4-661-451-01	ADHESIVE TAPE TOUCHPAD	77	A-8111-020-A \$	COMPLETE PWB IFX-193A3				B16	4-654-811-01	SCREW M3
16	4-654-837-01	SHEET BAY BOARD	78	1-823-720-12	CABLE, FLEXIBLE FLAT				B17	4-657-192-01	SCREW, TAPPING, SPECIAL
17	A-8067-477-A \$	CNX-161 ASSY (C) (S)	79	A-8111-023-A \$	COMPLETE PWB SWX-111A3				B20	4-645-177-01	SCREW (M1.7X3.5)
18	4-660-860-03	CASE BAY	80	A-8059-666-A \$ #	(GRX670)...						
19	X-4624-533-3	ASSY PLATE KEYBOARD	80	A-8111-359-A \$ #	ASSY HDD 40GB (T,20,F) (S)						
20	X-4624-528-2	ASSY BRACKET BAY	80	A-8111-359-A \$ #	(GRX690)...						
21	1-823-721-12	CABLE, FLEXIBLE FLAT			ASSY HDD 60GB (T,30,F) (S)						
22	4-661-289-01	INSULATOR PWS	* 81	4-653-799-02	BRACKET HDD						
23	A-8067-712-A \$	PWS-17 ASSY (C) (S)	82	X-4624-536-3	ASSY DOOR HDD						
24	1-815-594-21	CONNECTOR, PC CARD(EJECT,RIGHT)	83	4-653-801-02	SHEET HDD						
25	4-660-831-01	INSULATOR PCMCIA	84	X-4624-532-2	ASSY ESCUSHION JOG						
26	1-761-380-23 #	CARD, MODEM	85	X-4624-539-2	ASSY DOOR R						
27	1-761-519-11	PWB, FLEXIBLE PRINT	* 87	4-660-449-02	SUB-FRAME BOTTOM LEFT						
* 28	4-660-852-02	HEATSINK GHC	88	6-600-116-01	IC M470L3224DT0-CB0 (DDR266 SO-DIMM 256MB)						
* 29	1-763-828-11	2ND FAN	88	6-600-093-01	IC HYMD232M6466-H (DDR266 SO-DIMM 256MB)						
31	1-756-281-11	BATTERY, NICKEL HYDROGEN	89	4-662-961-01	SHEET BLIND L						
32	4-642-711-01	SHEET (BATTERY), ADHESIVE	90	4-654-953-01	SHEET PORT						
33	4-660-835-01	THERMAL SHEET CPU	91	4-662-926-02	INSULATOR HDD PWB						
34	6-703-333-01	IC RH80532GC041512-2 (P4 2000MHz)	92	4-660-868-01	FOOT FRONT						
35	1-960-827-61	HARNESS (2 PIN)	93	X-4624-527-5	ASSY BOTTOM						
36	A-8067-474-A \$	CNX-157 ASSY (C) (S)	94	4-660-866-02	DOOR PORT						
37	4-660-876-01	PLATE DC JACK	95	4-662-798-01	PLATE GND PWS						
38	4-660-853-01	THERMAL FIN	96	A-8067-706-A \$ #	MBX-65AP3 (C) ASSY (S)						
* 39	1-763-829-11	CPU FAN	97	4-654-380-21	CAP BAY						
40	4-668-737-02	THERMAL SHEET COIL	99	4-664-547-01	SHEET FPC						
41	4-660-445-03	BRACKET BATTERY	100	4-664-632-01	SPACER K						
* 42	X-4624-936-1	ASSY (SUBFRAME) (BOTTOM) (RIGHT)	105	4-664-561-01	ADHESIVE TAPE						
43	A-8067-475-A \$	CNX-158 ASSY (C) (S)	120	4-666-800-21	(GRX690)...LABEL ID (U)						
44	4-660-823-02	BRACKET DOOR R	120	4-666-800-41	(GRX670)...LABEL ID (U)						
45	4-661-272-02	INSULATOR BOARD AUDIO	121	4-663-828-02	SPACER PC CARD						
* 46	4-660-905-01	HOLDER HDD	122	4-663-827-01	CUSHION KEYBOARD						
* 47	4-660-451-01	PLATE GND HDD	126	4-663-230-02	CUSHION HOOD						
48	4-663-115-01	FOOT REAR FIXED	127	4-663-227-01	CUSHION IO						
49	4-660-861-02	DOOR BATTERY	128	4-664-048-01	INSULATOR FAN						
50	4-660-443-01	SPRING DOOR BATTERY	129	4-664-308-21	SHEET JOG						
51	4-660-862-21	DOOR DIMM	130	4-655-927-03	SPRING (DVD-ROM) (To)						
* 52	4-660-447-01	SUB-FRAME BATTERY	131	4-664-285-01	CUSHION KEYBOARD R						
53	A-8067-480-A \$	LEX-34 ASSY (C) (S)	132	4-661-644-01	SHEET, EYE CONVERTER						
* 54	X-4624-529-2	ASSY BRACKET IO	133	4-664-362-01	CUSHION IO LEFT						
55	1-823-725-12	CABLE, FLEXIBLE FLAT	134	4-664-363-21	CUSHION SPRING BLIND R						
56	1-823-723-13	CABLE, FLEXIBLE FLAT	135	4-664-482-01	SPACER HINGE L						
57	A-8067-478-A \$	SWX-91 ASSY (C) (S)	136	4-664-482-01	FILAMENT TAPE (W12X30) (*1)						
58	4-653-745-01	SPRING BAY									
59	4-659-630-02	LATCH BAY									
60	X-4624-530-4	ASSY DOOR MODEM									

*1 Use the FILAMENT TAPE.

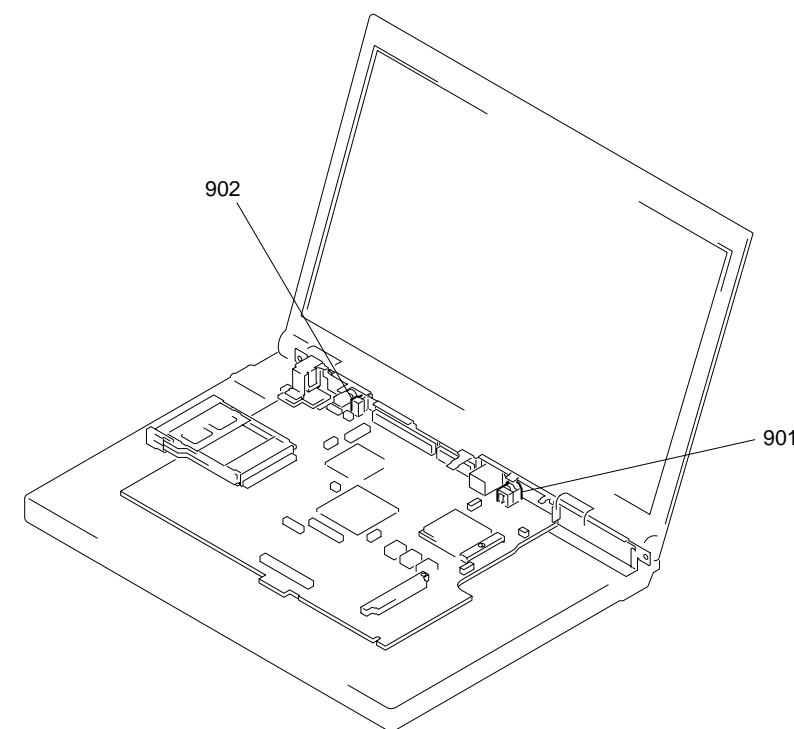


*1 By referring to “[How to identify the To and Pa types of parts] (page 3-1), use the To type parts when replacing the To type optical drive, and use the Pa type parts when replacing the Pa type optical drive.

3-2. LCD Section – Made by HI –

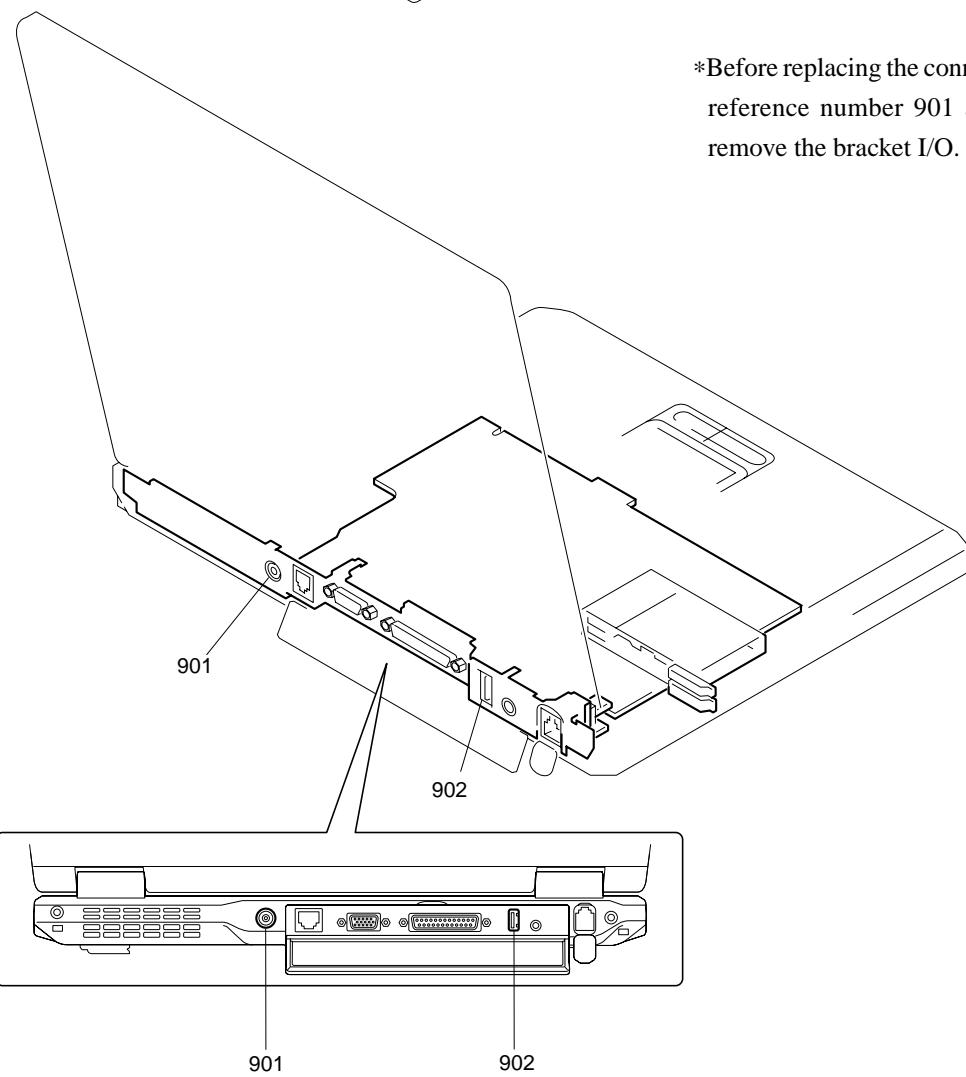


3-3. Connector Section (CH Type only)



Ref.No.	Fig.	Part No.	Description
901		1-779-745-21 [CH]...JACK, DC	DC IN connector
902		1-815-221-22 [CH]...USB CONNECTOR (VERTICAL)	USB connector

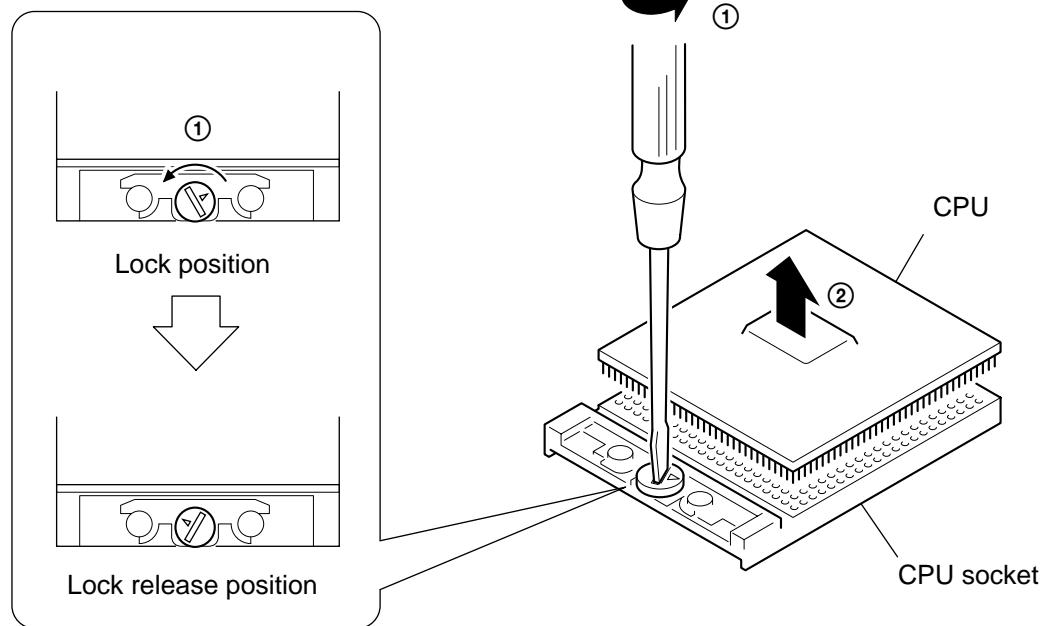
* Among the parts that are used on the boards of this model, only the connectors that are shown in the list can be replaced.
(The parts other than the specified connectors cannot be replaced.)



4-1. Replacing the CPU

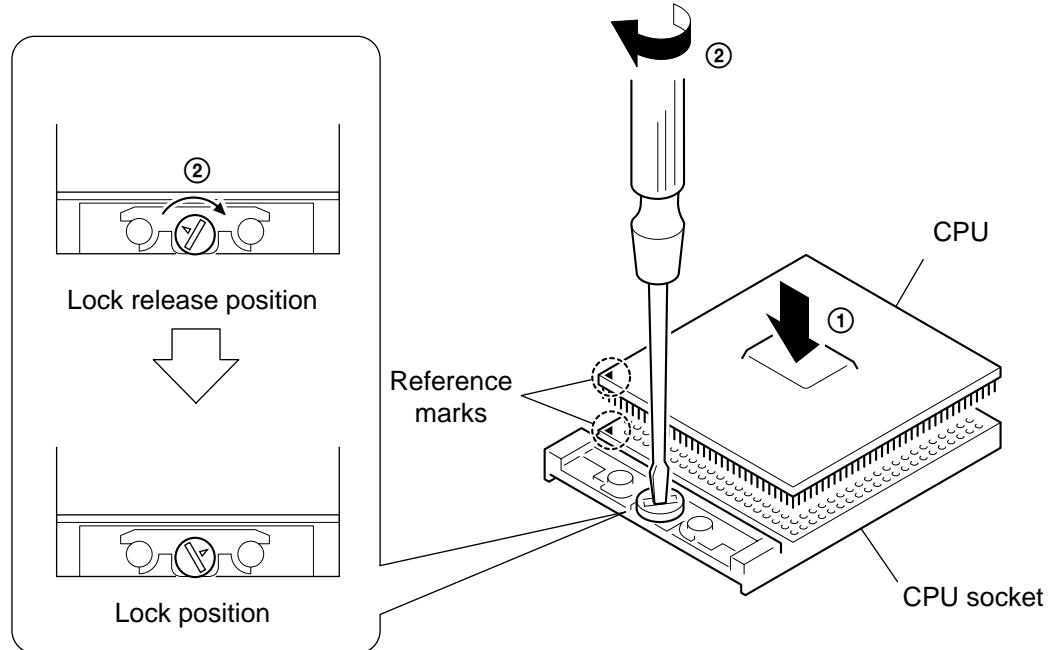
1. Removing the CPU

- ① Insert a flat-blade screwdriver into the notch as shown in the illustration and rotate it so that the protrusion comes to the lock release position.
- ② Pull the CPU gently upward to lift it out of the CPU socket.



2. Installing the CPU

- ① Align the triangle reference mark of the CPU with that of the CPU socket and insert all the pins of the CPU to the corresponding holes of the CPU socket.
- ② Insert a flat-blade screwdriver into the notch as shown in the illustration and rotate it so that the protrusion comes to the lock position.



NOTE:

Rotate a flat-blade screwdriver to the lock position securely. If not, the operation of the CPU may become unstable.

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List of PCG-GRX Series (As of October, 2002)

Model Name	Service Manual Part No.
PCG-GRX590	
PCG-GRX570	
PCG-GRX550	9-874-524-03
PCG-GRX510	
PCG-GRX580P	
PCG-GRX580K	
PCG-GRX580	
PCG-GRX560P	
PCG-GRX560K	
PCG-GRX560	9-874-542-02
PCG-GRX520P	
PCG-GRX520K	
PCG-GRX520	
PCG-GRX650	
PCG-GRX616	9-874-581-01
PCG-GRX717	
PCG-GRX670	9-876-012-01
PCG-GRX690	

 : Additional Models

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Revision History

Suffix	Ver.	Date	Contents	QM No.
-01	Ver. 1	2002.10.07	First Edition	
			< Remarks >	